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SEPT. 1974



IMPERIAL OIL LIMITED

Esso

ATLANTIC REGION

P.O. Box 907
St. John's
Newfoundland
A1A 2X6

November 6, 1979's

Subject: Oil Spills and

To: All Esso Agents - Nfld.

Gentlemen:

Recently we had a large oil spill at an Agency in Newfoundland and, rather than report the spill at that time, the Agent proceeded to clean up the spill and not report it to the Company. It was not until about six weeks after the spill did this mishap come to light. Needless to say, this put us in a very bad position with the Dept. of Environment. It also left us in a position whereby we could be subject to a fine of up to \$25,000.

It must be emphasized that any spill over 50 gals. must be reported to both your Retail Representative and the Canadian Coast Guard, phone 737-5151 - twenty-four hours per day or Zenith 07021.

The Coast Guard should be notified whether it is a land spill or water spill. Once the Coast Guard are notified they, in turn, notify both the Provincial and Federal Departments of Environment. The Canadian Coast Guard also look after the supervision of the clean-up. Once your Retail Representative is notified, he, in turn, notifies the Area Sales Manager and Mr. A. E. Woodley. Mr. Woodley, in turn, works with the Coast Guard and the Environment in cleaning up the spill.

Attached is a copy of the Alerting Procedures for Oil Spills and, I would ask, that all of you follow these procedures. At present a spill must be reported within twenty-four hours of discovery and, next year, it will be within six hours or else you will be liable for a heavy fine. I would ask that we all follow these procedures in order to abide by the regulations and prevent any major penalties.

Yours truly,

C. A. Cantley
Retail Area Manager

C.A. Cantley:LD

Enc.

C.C: Retail Representatives
Mr. P. G. Hollihan, Halifax
Mr. S. L. Miller, "

ALERTING PROCEDURES FOR SPILLS OF OIL AND/OR HAZARDOUS MATERIALS

In the event of an environmental emergency the below itemized list of required information should be forwarded to the following agency immediately.

CANADIAN COAST GUARD: PH. 737-5151 24 HR/DAY OR ZENITH 07021
TOLL FREE

INFORMATION REQUIRED:

1. Reporters - Name, phone number (24 hr.), address, title, company
2. Location - Nearest populated area
- exact location of spill
3. Type of Emergency - Oil spill, chemical spill, other
4. Quantity - Gallons, barrels, area of oil slick (attached is a guide for estimating the quantity of a slick)
5. Time - of spill
- of detection
- of report received
6. Source of Spill - Tank, pipe, truck, etc.
7. Type of Accident - Collision, rupture, overflow, etc.
8. Owner of pollutant and/or Carrier
9. Clean-up Efforts - by whom, address, phone number, percentage cleaned up
10. Clean-up Methods - what methods used - trenching, booming, damming, sorbents, dyking, removal, etc.
11. Spill Site Conditions - wind velocity and direction
- ambient temperatures
 Water - open water, wave height, currents, depths and tides
 - % ice cover if any
 - spill on or under ice
 Land - % snow cover and depth, if any
 - type of terrain, - bog, sand, soil, etc.
12. Contingency Plan - Is there a plan?
- Is it in action?
- Assistance needed?
13. Danger Potential - Course of spill
Water intakes, water fowl, fish, shorelines, vegetation, mammals.

GUIDE FOR ESTIMATING
THE CONTENTS OF AN OIL SLICK

<u>STANDARD TERM</u>	<u>GALLONS OF OIL PER SQUARE MILE</u>	<u>APPEARANCE</u>
"Barely visible"	25	Barely visible under most favourable light conditions
"Silvery"	50	Visible as a silvery sheen on surface water
"Slightly coloured"	100	First trace of color may be observed
"Brightly coloured"	200	Bright bands of color are visible
"Dull"	666	Colors begin to turn dull brown
"Dark"	1332	Much darker brown

NOTE: Each one-inch thickness of oil equals 5.61 gallons per
sq. yd. or 17,378,709 gallons per sq. mi.

Other Insurance Coverage Available:

1. You are responsible for the first \$500.00 of each accident which results in loss or damage to Imperial's plant or equipment. Primarily this means cargo tanks and pumping equipment, but it would also include any of Imperial's other equipment on loan to an Agent. You can arrange to have the \$500.00 potential liability insured through your insurance agent.
2. The two main Liability Policies do not cover the loss of product itself; however, cargo insurance is available.
3. Any liability arising out of the use of Fertilizer Handling Equipment, providing it is used on Agency property, is covered under Imperial's Liability Policy. However, you are responsible for any physical damage to Fertilizer Handling Equipment, including vandalism and theft. You may wish to obtain additional insurance to protect yourself in this area.
4. You would be wise to obtain an endorsement to your Automobile Policy which will cover any liability arising out of the use of fertilizer spreaders by Agency personnel. When a customer uses the spreader, the liability risk is covered under the General Liability Insurance which Imperial maintains on your behalf.

Stock Allowances

Bulk products will be accounted for and audited on the basis of receipts and sales, which are both made at prevailing temperatures, adjusted to 60 degrees Fahrenheit. In addition, allowances will be given for gasoline losses resulting from evaporation and displacement. These allowances vary according to the product, tank size and time of year. Refer to the Agency Accounting Manual for details on the amounts and methods of calculating of these allowances.

Plant Maintenance Responsibilities of Esso Sales Agents

Plant Component	Imperial Responsibility	Sales Agent Responsibility
1. Pumps	All repairs except	<ul style="list-style-type: none">- Daily; inspect pumps for leakage at seals.- Monthly; remove strainer baskets and clean.- Keep pumps clear of snow and ice.
2. Tanks	All repairs except	<ul style="list-style-type: none">- Report any leaks to I.O.L. immediately.- Check for water when gauging and drain off as required.- Monthly; check and lubricate gauge hatch (lock-ease).- Monthly; check operation of pressure vacuum vent and clean if required.

TO ALL IMPERIAL ESSO AGENTS

THIS MANUAL IS NOT COMPLETE
UNTIL YOU HAVE ENTERED THE
EMERGENCY NUMBERS AND NAMES
OF CONTACTS IN THE RED TAGGED
"ACTION PLAN" SECTION 2.

4. Vehicles Acts — Truck Licensing
 - Liability Insurance
 - Commercial Vehicle Requirements
 - Department of Highways Regulations
5. Department of Labour Regulations
6. Fire Commissioner Regulations

Municipal Government

1. Business License Requirements
2. Fire Prevention Regulations

Records and Reports

You are required to maintain current and accurate records to meet your personal requirements as well as those of Imperial and various governing bodies. You are the custodian of Imperial's assets in the form of *stock or money collected on the sale of stock* and are responsible for losses. To avoid losses, each and every transaction must be documented on the *correct form* immediately after the transaction takes place. After *documentation*, regular reporting of transactions is required to enable Imperial to maintain continuity of its business operation. The Agency Accounting manual fully details these requirements.

Liability Insurance

Recognizing the requirement to provide security and protection against third party action, the following is a summary of the insurance required, the coverage provided by Imperial, and the coverage which must be provided by you as an Agent.

Insurance Placed by Imperial on Behalf of the Agents:

Liability Insurance

Imperial maintains an insurance policy which protects you financially in the area of liability to members of the public and to property of the public. The limits of the policy are as follows:

- Bodily Injury and Property Damage \$500,000 inclusive
(with a \$50.00 deductible)
- 1. Essentially, this policy covers only what happens on the Agency property. This is a liability policy which provides protection if someone is hurt or if there is damage to customer's equipment on the Agency property.
- 2. *This does not cover any liability arising from the operation of your vehicles.*
- 3. All stocks of Imperial Products are your responsibility under all circumstances except fire, explosion, lightning, tempest, burglary or negligence by the company or its contractors.

Accounts Receivable Insurance

This policy, which Imperial keeps in force, has a limit of \$50,000 for any one loss (with a \$100.00 deductible) and provides you with the following protection:

1. Pays all amounts that you are unable to collect as a result of loss or damage to your Accounts Receivable records, by any cause not within your control.
2. Pays collection expenses made necessary due to loss or damage of records.
3. Pays all reasonable expenses incurred in re-establishing records of Accounts Receivable, following loss or damage.

Any incident which is likely to give rise to a claim under this policy should be reported immediately to the insurance adjuster. Serious property damage accidents and all accidents causing bodily injury or death must also be reported immediately to the Consumer Representative.

Insurance Which Imperial Requires the Agent to Carry:

Vehicle Liability Insurance

You must maintain public liability insurance covering the operation of your vehicles, with limits of at least:

- Bodily Injury and Property Damage \$200,000 inclusive

This policy will cover any mis-delivery claims. A few examples of the types of claims covered under this policy are:

- a. **Right Premises — Overflow:**
Overflow of gasoline or fuel oil, etc., while being delivered to the correct location.
- b. **Right Premises — Wrong Tank:**
Delivery made at the right premises, but into the wrong tank.
- c. **Right Premises — Wrong Filler Pipe:**
e.g. resulting in overflow into basement.

It should be clearly understood that this policy is between you and your insurance company. If the insurance company denies liability, your only recourse is to turn it over to your lawyer.

In order to ensure that you are fully covered under your Automotive Policy, you should make sure that the following items on the insurance policy read as indicated:

- a. **Occupation or Business:**
Show "Imperial Commission Sales Agent"
- b. **Purpose for which Vehicles will be used:**
Show "Business of the Insured, including the hauling of petroleum products".
You may also want to add that the vehicles may be used for pleasure.
- c. Do not accept any policy which has attached an Endorsement SEF 30 "excluding operation of attached machinery". This type of endorsement could affect your coverage for mis-delivery accidents.

OIL SPILL MANUAL

INDEX

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SECTION 1

INTRODUCTION

One of the ways Imperial Oil is demonstrating its concern for the effect its operations have on the environment is the development, implementation and update of Company-wide oil spill contingency and response plans. It is designed to provide guidance to the field organization on policy, organization, prevention, equipment for containment and clean-up, and other matters pertaining to an adequate and immediate response to the accidental spillage of oil.

While our efforts are directed primarily toward prevention, it must be recognized that accidents can, and will, occur to cause an oil spill. When one occurs, prompt and effective clean-up action must be initiated by personnel at the plant involved.

The formation of local cooperatives, including industry and governmental groups and material procurement, including mobile equipped vans for joint action in the event of an oil spill is quite well advanced in the Atlantic Region and the main thrust of our efforts in the immediate future will be directed toward the organization of oil spill teams, training and further individual plant contingency planning.

POLICY

IMPERIAL OIL LIMITED

POLICY ON OIL SPILL CLEANUP

Imperial should be responsible for initiating oil cleanup activity where, in the opinion of its management, the Imperial name or the name of any affiliate is clearly associated or likely to be associated with the spilled oil.

THE OFFICIAL POLICY OF IMPERIAL OIL LIMITED
ON THE CONSERVATION OF THE ENVIRONMENT

In the field of air, water and soil conservation,
it is the Company's policy

- TO COMPLY WITH EXISTING REGULATIONS
- TO PROVIDE SUCH ADDITIONAL PROTECTION OF THE ENVIRONMENT AS IS TECHNICALLY FEASIBLE AND ECONOMICALLY PRACTICAL
- TO ENCOURAGE, SUPPORT AND CONDUCT RESEARCH TO ESTABLISH STANDARDS OF QUALITY AND TO DEVELOP AND IMPROVE METHODS OF MEASUREMENT AND CONTROL
- TO COOPERATE WITH OTHER GROUPS WORKING ON PROTECTION OF THE ENVIRONMENT, SUCH AS UNIVERSITIES, CONTROL AGENCIES, TECHNICAL SOCIETIES AND TRADE ASSOCIATIONS
- TO ANTICIPATE FUTURE POLLUTION CONTROL REQUIREMENTS AND TO MAKE PROVISION FOR THEM IN LONG-RANGE PLANNING
- TO KEEP EMPLOYEES, GOVERNMENT OFFICIALS AND THE PUBLIC INFORMED

OIL SPILL
CONTINGENCY PLAN
CATALINA

DECEMBER, 1975

1. Stop spill at source (closing valves, etc.) and contain flow of product where possible. Prevent it from entering drains or sewers by building a dyke or rerouting the flow. In the event of a spill from the marine pipeline or its valves during tanker discharge, notify ship's personnel immediately to stop pumping and close valves at the tanks.
2. Evacuate customers from the plant yard, shut off plant power and close gates (do not lock). Stop other sources of ignition such as smoking or truck engines.
3. Warn local residents in immediate danger to shut off power and other sources of ignition and vacate premises.
4. If spill occurs at the wharf during tanker discharge, arrange to have a boom placed in the water around the shore to contain the spill.
5. Phone local Fire, Police and Town Council for assistance:

Fire Dept. (if fire hazard exists)	469-2576
	469-2541
Police (to assist in crowd control, etc)	468-7333
Town Council	469-2615
6. Notify Imperial Oil Salary Plant of all pertinent facts regarding the spill:

	<u>Plant</u>	<u>Home</u>
Art Woodley	726-1551	726-6893
Dave Ross	726-1551	368-2603

If difficulty is experienced in contacting the above, call your Agency Supervisor (722-0670 or 364-1100) or refer to the Oil Spill Manual, Section 6 (Organization) and continue until contact is made, starting with Region Oil Spill Committee.

7. Pick-up all visible liquid product and spread an absorbent (i.e. peat moss, speedi-dry) where it will be of assistance. Spilled product can be pooled by digging a hole in the lowest part of the dyke or spill area. Product can then be pumped into barrels or cargo tank. If heavy equipment is needed to block a ditch or dig a hole, etc., call:

Town Council (Catalina) 469-2615

Town Council (Port Union) 469-2571

8. Restore or treat area to correct damage caused by the spill according to Environmental Officials instructions and I.O.L. plant employees.
9. Contact Agency Supervisor and give him all the relevant facts regarding the spill. He will prepare the 1S-783 report.

SECTION 2

"ACTION PLAN"

ACTION TO BE TAKEN IF AN OIL SPILL OCCURS

AGENCIES

Operator (Plant Employee or Driver etc.) of Bulk Product Handling Facility

1. If possible, stop spill at source and limit movement of spilled product. Every effort must be made to contain the spill and prevent it from flowing into sewers, drains, streams, waterways, etc.
2. Establish location and extent of spill and type and quantity of product.
3. Observer of spill (driver, plant employees, etc.) contacts and reports details as outlined in 1 and 2 above and other relative information to:-

Esso Sales Agent or his assistant.

*Note: If hazard of spill is of such magnitude which constitutes an immediate threat to Life and Facilities, Esso Sales Agent shall contact Local Fire Police, City or Town Works Departments prior to contacting Salary Terminal Manager.

*City or Town Fire Department if fire hazard exists

Fire Alarm 2576-2541-2500

*City or Town Works Foreman if street or sewers are involved

Office 2615
After Hours & Holidays 2569

*Police Department where there is a hazard to movement of vehicles and people or where a vehicle accident has occurred

468-7333

4. Esso Sales Agent reports details immediately to:

Mr.
Salary Terminal Manager

Office
Home

or
Mr.

Office
Home

who will offer whatsoever assistance may be indicated (i.e. Management, Government Agencies, etc.)

If difficulty is experienced in contacting (4) see Imperial Oil Spill Organization Chart (Section 6 - this book) for Region Office contact.

5. Terminal Manager contacts (when applicable):

(a) Regional Office responsible for area

Terminal Operations Manager	Office Home
-----------------------------	----------------

or Planning and Economics Manager	Office Home
--------------------------------------	----------------

or Distribution Manager	Office Home
----------------------------	----------------

(b) Region Office responsible for advising Public Affairs, operating department concerned and central office Distribution.

(c) Appropriate Municipal, Provincial & Federal Government Authorities (Officials).

(d) Chairman of Local Environmental Protection Committee if their assistance is required.

(e) For Equipment Materials and Contractor Assistance.

6. Arrange for dispatch of spill removal equipment to site.

7. Arrange for disposal of salvaged oil in accordance with local regulations.

8. Take photographs of area concerned and complete Spill Report. See examples following emergency questionnaire.

As much information as possible should be obtained prior to reporting the spill. Often full details regarding source and cause are not known. Reports for the Press, or public will be referred to and handled by Regional Office.

When reporting incident to Salary Terminal, Esso Sales Agent should be prepared to answer questions on emergency questionnaire following this page.

*Note: In the event of a product mix in customer storage which creates a fire hazard (e.g. Gasoline in Fuel or Stove Oil) it is mandatory to inform Fire Marshall.

SECTION 2

REPORTING

Description of Forms:

1. Emergency Questionnaire (Salary Plant)
Provided simply to enable the Salary Terminal to obtain the facts quickly. It does not have to be completed or officially submitted to anyone.
2. Marketing Dept. Product Loss Incident Report IS-783 3/74
To be completed by Esso Sales Agents and submitted to the Consumer Sales Representative for submission to Consumer Business Manager.
3. Report of Oil Spill or Product Mix (Outside Carrier)
To be completed by contract hauler or outside carrier and submitted to the company official employing him.
4. Loss Report - Transportation Dept. - Distribution Division
To be completed by Terminal Plant Manager and submitted to Terminal Operations Manager.

This report runs to six pages and covers all types of incidents besides spills. Page 1 should always be completed but reports A, B, C, D, & E are only completed as applicable to the incident.

EMERGENCY QUESTIONNAIRE (SALARY PLANT)

Questions to ask when an incident is reported.

1. Who are you?
2. Where are you? Phone Number
3. What happened? ☐ SPILL ☐ MIX ☐ FIRE ☐ EXPLOSION ☐ OTHER
4. When? A.M. P.M. Date
5. Was anyone injured or clothing contaminated?
6. Is medical or ambulance assistance required?
7. Have local authorities, fire or police been notified?
(a) Who? (b) Are they responding?
8. What action has been taken?
9. Any third party involvement?
10. Are you satisfied all danger has been removed?
11. Can you continue to operate?

Incident details

SPILLS

MIX

FIRE & EXPLOSION

What product?	What product?	Is fire out?
How much?	How much?	Where?
Is it contained?	Has there been overflow?	Has flow stopped?
Are there wells in area?	Is tank quarantined?	What product?
Is there a stream nearby?	Any deliveries?	
Has flow stopped?		
Is there seepage?		
Do you have absorbents?		

Received by

DATE

TIME A.M. P.M. LOCATION

Reported to Time A.M. P.M.

REPORT OF OIL SPILL OR PRODUCT MIX (OUTSIDE CARRIER)

Forward To: Imperial Oil Limited

Address

Carrier: Name

Address

City

Province

Date of Incident

Time

Location of Name

Incident:

Address

City

Province

Type of Vehicle:

Load:

Product Name

Bbls.

Product Spill:

Bbls.

Product Mix:

Bbls.

DESCRIPTION & CAUSE OF INCIDENT:

ACTION TAKEN:

Notification

Date & Time

by Telephone:

Date & Time

Signed:

LOSS REPORT

PAGE 1 OF _____

IMPERIAL OIL LIMITED TRANSPORTATION DEPARTMENT - DISTRIBUTION DIVISION

REGION REPORT # _____

INSURER'S # _____

INCIDENT TYPE

ATTACH FORM(S)

REGION _____

- ☐ MEDICAL AID
☐ DISABLING INJURY
☐ DEATH
☐ VEHICLE
☐ SPILL
☐ MIX
☐ EXPLOSION, FIRE
 EQUIPMENT DAMAGE, THEFT,
 LEASED CAR, ETC.
 SPECIFY:

} A
 B
 C
 D
 E

TERMINAL _____

TERMINAL MANAGER _____

DATE _____ TIME _____
 (24 HOUR CLOCK)

OPERATION ☐ DISTRIBUTION DIVISION
☐ OTHER (DEPT., CARRIER ETC)
 SPECIFY: _____

THIRD PARTY INVOLVEMENT ☐ ATTACH FORM B

(IF DISTRIBUTION DIVISION) ☐ PREVENTABLE ☐ NON-PREVENTABLE

LOCATION OF INCIDENT _____

EMPLOYEE(S) INVOLVED _____

SUMMARY OF FACTS

(a) CAUSE, RESULT, CORRECTIVE ACTION

TO BE COMPLETED BY SALARY

PLANT SUPERINTENDENT

(b) ESTIMATE OF COST I.O.L. \$ _____ OTHERS \$ _____

RECOMMENDATION AND FOLLOW-UP

DATE OF REPORT _____ SIGNATURE OF SUPERVISOR _____

LOSS REPORT A

MEDICAL AID, DISABLING, DEATH

REGION REPORT # _____

REGION _____

TERMINAL _____

EMPLOYEE'S NAME _____

NUMBER _____ AGE _____

YEARS OF SERVICE _____

NUMBER OF PREVIOUS PREVENTABLE INCIDENTS (ALL TYPES) PAST 5 YEARS _____

CURRENT YEAR _____

NATURE OF INJURY _____

SEVERITY

☐

FIRST AID*

☐

MULTIPLE

☐

MEDICAL AID

☐

PERMANENT PARTIAL

☐

LOST TIME

☐

FATAL

PERSON IN CHARGE _____

WITNESSES _____

OCCUPATION WHEN INJURED _____

REGULAR OCCUPATION _____

WORKING OVERTIME?

☐

YES

☐

NO

DESCRIPTION OF INCIDENT

LOSS REPORT B

(PART I OF III)

VEHICLE ACCIDENT, AND/OR THIRD PARTY LIABILITY

REGION REPORT # _____

INSURER'S # _____

REGION _____

TERMINAL _____

DRIVER

NAME _____ EMPLOYEE NO. _____

YEARS DRIVING FOR COMPANY _____ YR. SEASONAL/CASUAL ☐ YES ☐ NO

NUMBER OF PREVIOUS PREVENTABLE INCIDENTS (ALL TYPES) PAST 5 YEARS _____

CURRENT YEAR _____

LICENSE NO. _____

VEHICLE

NAME AND TYPE _____ REGISTRATION NO. _____

OWNED BY _____

DESCRIPTION OF LOAD _____

DAMAGE _____

INJURED PERSONS

NAME _____ AGE _____

ADDRESS _____ CITY _____ PROV. _____

INJURIES _____

ATTENDED BY _____

NAME _____ AGE _____

ADDRESS _____ CITY _____ PROV. _____

INJURED _____

ATTENDED BY _____

NAME _____ AGE _____

ADDRESS _____ CITY _____ PROV. _____

INJURIES _____

ATTENDED BY _____

PROPERTY DAMAGE

VEHICLE - NAME & TYPE OF CAR _____ REGISTRATION NO. _____

OPERATED BY _____ DRIVER'S LIC. NO. _____

ADDRESS _____

OWNED BY _____ ADDRESS _____

INSURED BY _____ POLICY NO. _____

DAMAGE _____

OTHER PROPERTY _____

WITNESSES

NAME

ADDRESS

(a) _____

(b) _____

(c) _____

(d) POLICE OFFICER _____ BADGE NO. _____ DIVISION NO. _____

ASSURED

IMPERIAL OIL LIMITED TELEPHONE NO. _____

ADDRESS _____

ADJUSTER CALLED (IF ANY) _____

LOSS REPORT C

SPILL

REGION REPORT # _____

REGION _____

TERMINAL _____

OPERATOR/CARRIER

☐

I.O.L.

☐

OTHER

NAME _____

ADDRESS _____

RESPONSIBILITY

☐

DISTRIBUTION DIVISION

☐

OTHER (I.O.L. DEPT., CARRIER ETC., _____)

IF DISTRIBUTION DIVISION

EMPLOYEES NAME _____ NUMBER _____

OCCUPATION _____

YEARS OF SERVICE _____ AGE _____

NUMBER OF PREVIOUS PREVENTABLE INCIDENTS (ALL TYPES) PAST 5 YEARS _____

CURRENT YEAR _____

SPILL

PRODUCT NAME _____

QUANTITY SPILLED _____ GAL. QUANTITY RECOVERED _____ GAL.

LOCATION _____

IF MARINE: MAP COORDINATES: _____

WEATHER: WIND _____ MPH DIRECTION _____

AIR TEMP. _____ °F WATER TEMP. _____ °F

DESCRIPTION OF INCIDENT

ABATEMENT METHOD

TYPE

AMOUNT

EFFECTIVENESS

CONTAINMENT

SKIMMER

ABSORBENT

DISPERSANT

OTHER

CLEANUP PET-CO

COST OF PRODUCT LOST \$ _____

COST OF CLEAN UP \$ _____

NOTIFICATION

IMPERIAL OIL _____

AUTHORITIES _____

SIGNED _____

ON-SCENE COMMANDER

LOSS REPORT D

MIX

REGION REPORT # _____

REGION _____

TERMINAL _____

OPERATOR/CARRIER

☐
☐

IOL

OTHER

NAME _____

ADDRESS _____

IF IMPERIAL OIL

EMPLOYEE'S NAME _____ NUMBER _____

YEARS OF SERVICE _____ AGE _____

NUMBER OF PREVIOUS PREVENTABLE INCIDENTS (ALL TYPES) PAST 5 YEARS _____

CURRENT YEAR _____

LOCATION OF INCIDENT _____

PRODUCTS MIXED

VOLUME (GALS)

(a) _____

(b) _____

(c) _____

(d) _____

DESCRIPTION OF INCIDENT

LOSS REPORT E

EXPLOSION, FIRE, EQUIPMENT DAMAGE,
THEFT, LEASED CAR ETC.

REGION REPORT # _____

REGION _____

TERMINAL _____

NATURE OF INCIDENT _____

(IF APPLICABLE)

EMPLOYEE'S NAME _____ NUMBER _____

OCCUPATION _____

YEARS OF SERVICE _____ AGE _____

NUMBER OF PREVIOUS PREVENTABLE INCIDENTS (ALL TYPES) PAST 5 YEARS _____

CURRENT YEAR _____

DESCRIBE INCIDENT AND ACTION TAKEN

SECTION 3

PUBLIC AFFAIRS

PRESS

Today, because of heightened concern over oil pollution, an oil spill is news -- press sensitivity in this area has resulted in reporting of even very small spills. When necessary, on-scene public affairs support will be supplied by the region public affairs advisor or the public affairs department. However, because of the far-flung nature of company operations, representatives of the press may reach the scene of the oil spill before it is possible for a public affairs department representative to arrive there. Further, in most cases concerning minor spills, it will not be necessary for a public affairs representative to be present. In all cases, therefore, the initial responsibility for press contact will be that of the On-Scene Commander, and, in many cases, he will have sole responsibility for such contacts. The On-Scene Commander should feel free to consult the public affairs advisor by telephone if such action would be helpful.

The following are guidelines for dealing with press queries in the event of a spill:

The tone of both immediate and continuing press coverage of an oil spill is influenced by the way in which reporters are treated by company representatives. Everything within reason should be done to cooperate with the press. They should be permitted to view the spill from a reasonable and safe distance, and to take photographs (the press will be reasonable if there should be any danger from flash bulbs and this is pointed out to them). Assistance should be provided to reporters in relaying their stories if communication facilities are available.

Initial statements should be of a general nature and should include the following information as appropriate:

- The name of the unit, facility, or vessel(s) involved.
- Time of accident.

(Cont'd)

- Name of vessel's owner (in situations involving marine movements).
- Destination (or next port of call), (in situations involving marine movements).
- Type of spill.
- Estimate of amount spilled, if clearly established.
- Cause (if clearly determined, see note below).
- What groups and individuals have been notified.
- Action being taken.
- When cleanup might reasonably be expected to be completed.

Do Not

- Make statements that could in any way increase the company's liability (see note below).
- Speculate on any aspect. If you do not know the answer to a question, say so, and nothing more.
- If death or injury is associated with the accident, do not release the names of the dead or injured until next-of-kin have been notified through company channels. The press understand the reasons for this.

Note:

In most instances there is no doubt as to the cause of a spill. There are cases, however, in which cause is not clear. As an example, a tank truck overturned on a busy Ontario highway, spilling heavy fuel over the road and holding up traffic for some hours. In this case, the company concerned could rightly state that the immediate cause of the spill was obvious, but that the reason for the accident itself was being investigated -- in other words, whether or not the driver was at fault. This type of situation

(Cont'd)

obviously relates to the caution that company spokesmen say nothing that would increase the company's liability -- when the cause of an accident is not clearly determined, the press should be told that we are investigating the cause. Further, under the company's oil spill policy, the company goes into action whenever the company's name or the Esso brand, whether or not it is liable, e.g. the Arrow. (In the case of the Arrow, the company said in its public statements that it was moving on the situation and that in this regard it was concerned with eliminating and minimizing any possible damage to property and wildlife which could result from the accident, and that the question of liability "is one which requires further discussion with the ship owners and other parties involved".)

PUBLIC AFFAIRS CONTACT

It is important that the public affairs department be advised of all oil spills - regardless of size.*

The responsibility for such notification lies with functional management and should be made to the regional public affairs advisor. If that person is unavailable, notification should be made to the Public Affairs Department, 111 St. Clair Avenue West, Toronto, when in the opinion of functional management, the size and/or nature of the spill required immediate public affairs representatives.

Press releases dealing with Cooperatives can be approved through the Oil Industry Contingency Plans National Coordinating Committee Chairman.

The following are the names of the Atlantic Regional Public Affairs representatives:

- * This notification responsibility of Region Office Distribution Division as per Action Plan.

(Cont'd)

	<u>Office</u>	<u>Home</u>
G.N. Hancock, Halifax, N.S.	424-6934	454-0451
Mrs. E. Shannahan	424-6933	

In the event that the Atlantic representative is unavailable, it is necessary that the Toronto Public Affairs Office be contacted. Any one of the following should be notified:

	<u>Office</u>	<u>Home</u>
D.R. Gracey, Toronto	924-9111(Ext. 859)	293-0786
W.G. Charlton, Toronto	924-9111(Ext. 885)	489-9176
R.E. Landry, Toronto	924-9111(Ext. 856)	482-6964

INDEMNIFICATION

Insurance companies have become very concerned with the potential costs of all forms of pollution and most liability policies now contain exclusions restricting coverage for certain claims arising from pollution. Because of changes in social attitudes, government legislation, and insurance markets, it is difficult to determine in advance the situations where claims may be collectible under commercial policies. In order that the coverage which may be available will not be prejudiced, it is important at the time of a spill, no admission of liability or settlement of claims be made until the position of the insurers has been determined. It is also essential that prompt notification of occurrences which may give rise to claims be given to the insurers, and because of their concern with pollution such notification should be made to senior officials of the companies. For these reasons, it is important that the following procedures be adhered to in the event of an oil spill:

1. Notify the Insurance Division of the Treasurer's Department immediately by telephone or telegram.
2. Do not report the occurrence to the local office of the insurer or the local adjuster.
3. Do not admit liability for the oil spill or for any resulting damage.

If information regarding Imperial's insurance policies is required from a person close to the scene, the nearest Atlantic region insurance representative is Mr. D. E. Appleby, Region Office, Halifax, N. S. Telephone - Office 424-6871.

SECTION 4

ACTION PLAN COMPONENTS

Essentially, the action plan consists of two components:

1. PREVENTION: Obviously, the best way to deal with spills and leaks is to ensure that they do not occur.
2. RESPONSE PLAN: To have a plan of action in the event that spills do occur in order to minimize environment hazard by fast, effective response to:
 - a) Safeguard life, property and the environment
 - b) Contain the spill
 - c) Recover the product
 - d) Clean up the site
 - e) Document the incident

It follows that before such a response plan can be evolved, it is necessary to visualize:

1. What could go wrong?
2. How would you handle it?

This is what is known as:

"CONTINGENCY PLANNING"

Definition: A Contingency Plan is a plan of action for your own particular location to ensure that the adverse effects of spills are kept to a minimum through use of a fast, effective response if and when a spill occurs.

This then briefly summarizes the Imperial Oil Action Plan.

In the balance of this section, we go into greater detail regarding the elements of the Action Plan.

Prevention

Response Plan

Contingency Plan

PREVENTION

INTRODUCTION

Oil spills usually occur from human error or equipment failure. Budget funds may be spent most wisely and economically on prevention of oil spills rather than cleanup. Containment and cleanup is a very difficult and expensive process. Prevention, therefore, requires the greatest emphasis in the overall contingency plan.

It is important to prevent escape of oil whether a routine or accidental spill. If oil escapes, the environment will suffer.

Good design, where attention is directed to such things as adequate spacing and dyking, proper materials, anti-corrosion protection, automatic devices to indicate or minimize a spill, etc. is a basic part of this program.

Equally important are adequate and clearly defined written operating procedures for transferring oil to or from tankage, ships, trucks, tank cars and customer installations, supplemented with a training program that assures an adequately trained and competent staff.

Surveillance of potential spill areas should be conducted on a regular basis. All leaks should be reported and attended to at once. Frequent inspection and a good recording system are all part of a good oil spill prevention program.

PIPE LINES

Oil spills occurring in this area of operations are generally small in size but can be numerous in occurrence. These spills often originate from ground leaks, drainage ditches and dehydration facilities and find their way into nearby waterways. Large spills can result from corrosion, stock tank overflows and poor pumping facility maintenance. These spills, while individually not causing great damage, can, collectively, be very harmful.

(Cont'd)

All designs should be reviewed for potential oil spills, corrosion failures and field access. This should be done by personnel responsible for the operation, together with designing personnel.

Corrosion surveys should be conducted periodically so that trends are determined for replacement, well in advance of leaks. Surveillance should be a regular part of the operating procedure, with emergency repair equipment conveniently deployed in a state of readiness.

Field maps should be continuously updated, with Company facilities clearly shown, as well as all related environmental detail that might affect the facility and normal access for operation and maintenance.

A training program should be adopted to keep personnel continually abreast of latest preventive maintenance techniques.

TERMINALLING

Prevention of spills in the terminalling part of our business requires concentrated management and employee attention in at least three areas.

Effluent from every plant separator should be continuously monitored. The most effective program is to prevent oil loss from any source into the separator facilities by intensive training.

Major Failures, Fires or Tank Ruptures can result in the release of oil beyond the property limits of the plant or terminal. The obvious preventive stop is to exercise all precaution for the avoidance of such incidents. Essential in this area are a highly trained and skilled work force, good facility design and construction practices, rigid equipment inspection practices, and an effective preventive maintenance program.

(Cont'd)

Loading and Unloading Ships can result in oil spillage that in many instances is most difficult to contain. Preventive steps include attention to the condition of pipe lines, valves, drains, hoses, loading arms and other ancillary equipment, as well as good operating procedures.

Attention to the following fundamental areas of operation can do much to prevent pollution.

SHORE

1. Clearly understood methods of communication with ship personnel.
2. Care in topping off tanks.
3. Careful maintenance of hoses, valves, pipelines and tankage.
4. Draining of hose or Chicksan arms prior to disconnecting.

SHIP

1. Clearly understood methods of communication with shore personnel.
2. Careful inspection and maintenance of hoses.
3. Draining of hose prior to use.
4. Proper installation of scupper plugs.
5. Provision of drip pans under hose connections.
6. Caution and diligence in setting up cargo and ballast systems.
7. Care in topping off both ballast and cargo.
8. Caution when opening, closing and sealing seacocks.

MARKETING

Since Marketing facilities are widely dispersed and, by their nature, often located near densely populated areas, they represent a high potential for damage hazard, if adequate preventive measures are not implemented, even though the volume of oil spillage is small in normal day to day operations.

Service Station Operations can contribute to oil pollution if adequate preventive measures are not implemented. Waste Oil disposal and leaking underground tanks are probably the two principal areas that have the highest potential for service station oil pollution. Preventive measures basically consist of providing adequate Waste Oil storage capacity and a non-polluting disposal method of such oils. Leaks from underground storage tanks, especially gasoline, can be extremely serious from both a safety and pollution standpoint. Early detection of leakers is very important. Most leaks are attributable to corrosion which can be overcome by cathodic protection and are best detected by periodic static pressure testing.

RESPONSE PLAN

INTRODUCTION

The Response Plan may be considered to have two phases:

1. Communication Sequence
2. Action Sequence

COMMUNICATION SEQUENCE

The discovery, or report, of an oil spill must be communicated as quickly as possible to designated Management personnel and appropriate civic and governmental agencies.

For purposes of oil spill classification, the recommendation of Task Force - Operation Oil, headed by P.D. McTaggard-Cowan, as set forth in Volume I of the report on the "ARROW" cleanup, is used here:

<u>Classification of Task Force</u>	<u>Inland Waters (U.S.G.)</u>	<u>Offshore Waters (U.S.G.)</u>
Minor	Less than 100	Less than 1,000
Moderate	100 - 10,000	1,000 - 100,000
Major	Over 10,000	Over 100,000

1. All minor spills that lend themselves to a quick and satisfactory cleanup by local plant or marine personnel, and have no potential for adverse publicity, must be reported within 48 hours to Functional Management using standard forms (see copies attached).
2. All other spills must be immediately reported, after steps have been taken to prevent further spillage, sources of ignition eliminated to prevent fire, and local police and fire departments alerted, to functional and/or other designated Management personnel, who will activate and set in motion the complete action sequence, including notification of appropriate Municipal, Provincial and Federal authorities if deemed necessary.

(Cont'd)

Terminal Managers and Superintendents of the Atlantic Region Distribution Division at our main Marine Terminals have been designed as oil spill On-Scene Commanders, to whom all spills under (2) above, as well as other major occurrences, must be reported. It is important that the On-Scene Commander be given all the pertinent facts regarding the spill, as indicated on the Emergency Questionnaire (copy attached), so that an adequate and total response is activated in the initial stages. Past experience has indicated that the tendency is to underestimate, in terms of material and manpower, the effort required to clean up a spill; it is better to have too many resources than too few. (See attached list for names and telephone numbers of On-Scene Commanders, geographical areas of responsibility and alternates).

Any time the above On-Scene Commanders are alerted to a spill, under (2) above or in their own area of operations for other than minor incidents, they will notify Region Office Distribution Division immediately following their preliminary response. They will then, after notifying appropriate government agencies, take command of the situation and proceed to the scene of the spill, if deemed necessary.

For major spills, the Region Oil Spill Committee will be alerted and under the direction of the Regional Corporate Committee will set up headquarters near the scene of the spill to handle the greater volume of work required.

It is important that a complete report be prepared and forwarded to Region Office Distribution Division by the On-Scene Commander immediately following an oil spill cleanup incident. Distribution Division will copy for chairman of R.E.P.C. and other interested parties.

CONTAINMENT

Stop the spilling (if possible). Contain the oil by means of dykes, booms, sorbents, etc.

- (Dispersants

See Section 5 - (Containment

RECOVERY AND DISPOSAL

Collect the oil into containers such as tanks, trucks, barges, or drums, using vacuum tanks, either truck or barge mounted, skimmers, or other devices. The collected oil should be reused if possible or destroyed if reuse is not practical. Government approved sites for disposal should be included in the Region Pre-Spill Plan.

See Section 5 re Recovery, Disposal and Restoration.

RESTORATION

Planning should include methods of restoring the environment to its pre-spill condition. This would involve such work as cleaning boats, beaches and wharves or in the case of spills on land, removing the oil-soaked earth and replacing it for revegetation.

INDEMNIFICATION

See Section 3 for proper procedure in the handling of legitimate claims associated with oil spillage.

CONTINGENCY PLANNING

Each Local Oil Spill team should review the area of operation to determine the possibility of oil spills and the kind of exposure anticipated. From such a review, a specific plan of action can be prepared for each case.

Any contingency plan will involve the following items for consideration:

Manpower; Equipment for Containment, Removal, Storage and Disposal; Material to Absorb, Dispose and Disperse; Auxiliaries, such as pumps, Drivers, Fuel, Eductors, Sprays, Hose, etc.; Transportation-Road-Boat-Aircraft.

With a careful program of prevention, it is not anticipated that many spills will occur, but we must be prepared to thoroughly cope with the smaller type spill and to take immediate and appropriate action in case of a major one.

A CONTINGENCY PLAN: Is as individual as your name. It is unique and applicable to the location it is designed for alone. You cannot therefore borrow somebody else's plan, you must prepare your own, so lets get started.

Armed with the two questions:

- 1) What could go wrong?
- 2) How would I handle it?

Take a long critical look at your plant or facility and determine:

- (A) The most likely areas within your operation where spills might occur. This is called "Potential Problem Analysis".

- Tank Farm
- Loading Rack
- Marine Line
- Dock
- T/T Unloading Standard
- T/C Unloading Standard
- Pumps
- Lines
- Warehouse, etc.
- Trucks in Transit

- (B) Evaluate hazard areas in respect of "probability and potential size" of spill. The probability of a tank rupture may be less than a barrel leak in the warehouse, but the potential size of the spill is greater.

Next, attempt to determine the probable course the product would take.

Since the product will inevitably follow the natural contours of the location, the drainage pattern of the location is of vital interest.

- (C) Examine the drainage pattern carefully. Would the product flow into a ditch, a stream, the harbour or area of marshland or sewer?

What effect would it have on the surrounding area?

Would it contaminate wells or water supplies, constitute a hazard to life or property?

How would you contain the product and what natural advantage does the drainage pattern offer? Could you for example enlarge the ditch and line it with plastic sheeting covered with a thin layer of earth and provide some rapid means of blocking off the outflow such as a culvert plug or mound of earth so that it would act as a catch basin?

If it is inevitable product would flow into a stream or river would it be possible to contain it by means of a boom? If so, where would be the best place to attempt this (Control point) and where would you obtain the boom? (See equipment lists)

Where would you obtain the manpower and equipment? (Communications list)

How would you recover the product?

When you have the answers to these questions, you will have a Contingency Plan.

Your own individual contingency plan should follow this page.

CONTINGENCY PLAN

EXAMPLE - CONTINGENCY PLAN

TANK TRUCK TURNOVER

The action to be taken in the event of a tank truck turnover, with subsequent rupture of the tank, is listed below in order of priority.

The driver will (presuming he is capable):

1. Notify Terminal Manager and police through the first motorist on the scene.
2. Confirm that the Terminal Manager has been notified when the first police officer arrives.
3. Erect reflectors to warn oncoming traffic and prevent motorists from becoming involved in the accident.
4. Remove extinguishers from truck and place in a readily available spot.
5. Try and contain the product and prevent it from entering sewers, etc.
6. Inform authorities, should they wish to wash product down sewers, etc. that this is a hazardous procedure. However, if authorities persist, he should not hinder them but obtain witnesses and names of authorities involved.

The Terminal Manager or Superintendent will (when notified)

1. Alert members of Oil Spill Team as per emergency instructions.
2. Send equipment to scene to contain spill and remove truck cargo.
3. Proceed to the scene and direct operations.
4. Establish a means of communication between accident and terminal so that additional equipment can be dispatched if necessary.

(Cont'd)

NOTE: It is recognized that there can be no set rule of action for every occasion or situation that a driver may be faced with but it is felt that above will be of some assistance.

LISTED BELOW ARE A SERIES OF STEPS TO FOLLOW IN CASE OF EMERGENCY - THESE ARE NOT CONTINGENCY PLANS BUT SHOULD BE OF ASSISTANCE TO YOU IN THEIR FORMULATION.

SPILLS ON LAND

Note:

Assistance should be sought as soon as possible, but we feel that it is extremely important that the person discovering the spill should make the utmost effort to prevent the product from entering the public drainage system. Once the product reaches the drain, it enlarges the danger area to a size such that it would be impossible to eliminate all the sources of ignition.

TANK FARM SPILLS

OVERFLOW

Low and High Flash, Small and Large Spills

1. Stop the flow of product.
2. Warn those in immediate danger.
3. Prevent the spill from leaving property, if at all possible.
4. Remove sources of ignition, use foam on low flash if necessary.
5. Sound alert and/or notify supervisor.
Personnel will proceed with assigned duties.
6. Call in outside assistance as required.
7. Notify authorities if outside operations are affected.
8. Call in cleanup equipment.

LINE BREAK

Low and High Flash, Small and Large Spills

1. Stop the flow of product.
2. Warn those in immediate danger.
3. Prevent the spill from leaving property, if at all possible.
4. Prevent ignition, use foam on low flash if necessary.
5. Sound alert and/or notify supervisor. Personnel will proceed with assigned duties.
6. Call in outside assistance as required.
7. Call in cleanup equipment.

PIPE LINE SPILLS

Low and High Flash, Small and Large Spills

1. Stop the flow of product (at the pumping stations).
2. Warn those in immediate danger.
3. Remove sources of ignition, use foam on low flash if necessary.
4. Prevent the spill from entering the ground if possible.
5. Sound alert and/or notify supervisor. Personnel will proceed with assigned duties.
6. Contain the spill and prevent as much as possible from entering soil or sewage.
7. Call in assistance as required.
8. Call in cleanup equipment.

TRUCKS TURNING OVER IN TRANSIT

Low and High Flash, Small and Large Spills

1. Stop the flow of product.
2. Warn the public and keep them out of danger.
3. Remove sources of ignition. Do not start or move truck unless a fire breaks out. Use foam on low flash if necessary.
4. Contain the spill, keeping it out of the ground and sewage system if possible.
5. If the spill was not the result of a traffic accident, and if there is no public hazard, call the fire department. If either of these points do apply, call the police also.
6. Call cleanup equipment. Removal of the soil might be necessary.
7. Call the Terminal Manager or Superintendent.

SERVICE STATION SPILLS

Low and High Flash, Small and Large Spills

1. Stop the flow of product.
2. Warn the public and keep them out of danger.
3. Remove all sources of ignition, use foam on low flash products if necessary.
4. Contain the spill, keeping it out of the ground and sewage, if possible.
5. If the spill is a public hazard, call the police and fire departments. If not, call the fire department only.
6. Do not start up and/or move truck unless fire breaks out.
7. Notify the Terminal Manager or Superintendent.
8. Call in cleanup equipment.

(Cont'd)

Note:

Tight fill caps - if tank is filled leaving product in the hose:

1. If the station is open, have the station owner pump gas into cars or containers to completely drain the hose.
2. If the station is closed, call the terminal for assistance.

AIRPORT SPILLS

Low and High Flash, Small and Large Spills

1. Stop the flow of product.
2. Warn the public and keep them out of danger.
3. Remove all sources of ignition, use foam on low flash if necessary.
4. Contain the spill, keeping it out of the ground and sewage, if possible.
5. If the spill was not the result of a traffic accident, and if there is no public hazard, call the airport fire department. If either of these two points do apply, call the police also.
6. Notify the Terminal Manager or Superintendent.
7. Call in cleanup equipment.

OUTSIDE HAULERS

In case of spills:

1. Hauler has financial responsibility.
2. Imperial has a moral responsibility.
 - Inform haulers re reporting system.
 - Act as if IOL own equipment.

(Cont'd)

- Report as per manual.
- Assist hauler where necessary to ensure swift, effective cleanup.
- Keep record of cost recover from hauler.

SECTION 5

HANDLING SPILLS

SPILL CONTAINMENT

SPILL CONTAINMENT ON WATER

Oil spilled on water will quickly spread to form a thin film over a wide area, thus making cleanup more difficult to achieve. Within its limitations, a boom can be an effective tool to prevent this. Commerical booms, such as the T-T and Bennett currently used in our region, are not very effective in waves higher than two feet, currents above two feet per second and high winds. In excessive currents, the floating oil will actually pass under the skirt. Booms can be used to partly surround a slick and the perimeter can be reduced by drawing in the boom from one end. This facilitates oil skimming. Care must be taken to move the end very slowly or the oil will pass under the boom.

The best approach is to lay out the boom downwind of the slick, and well in advance of its arrival. If placed at an oblique angle to the movement of the oil, the oil will be deflected along the boom and may be conveniently picked up as a concentrated layer by a skimming device.

LOCATING THE BOOM

When the boom is at right angles to the current, surface flow of water and oil is stopped. At current speeds greater than 1.3 knots (130 feet per minute), vortexes (whirlpools) and entrainment pulls the oil down and under the boom. Holding the boom at an angle of less than 90 degrees to the current permits surface water and oil to flow downstream along the boom into a collection area and/or against the shore. The reduction in effective speed of the current is proportional to the decrease in the angle of the boom relative to the direction of current flow (see Figure 1). Booms may be anchored using a boat, marine anchor, ropes, cables, stakes, etc.

OIL SLICK MOVEMENT

The ability to predict the movement of oil slicks on water is useful. Wind has a greater influence than current in directing the movement of oil. Wind moves oil at approximately 4% of wind speed, so a 25 MPH wind will move oil at about 1 MPH. Waves, produced by the wind, limit the effectiveness of booms, even before the oil velocity reaches 4 ft./sec. (2.7 MPH), the velocity above which our present booms are no longer effective.

When wind and current are in the same direction, their effect is additive. A downstream wind of 25 MPH moving with a 2 MPH current will give the oil an over the boom speed of about 3 MPH. When the wind blows against the current, the effect is not subtractive. The movement of the oil is practically independent of the counterflow of water. A 25 MPH wind, blowing counter to a 2 MPH current, will actually move oil upstream.

SPILL CONTAINMENT ON LAND

Spills on land present three major hazards:

- (a) pollution of domestic water supplies
- (b) pollution of open natural water courses
- (c) fouling arable land

POLLUTION OF DOMESTIC WATER SUPPLIES

If oil enters an open reservoir directly, the containment should be as described in Spill Containment on Water.

In cases where the oil can soak into the soil and gradually pass into a domestic water supply either by seepage into underground water courses or by rain leaching and gradual draining into the domestic water supply, rapid action is necessary to minimize final cleanup operations.

Small spills can best be handled by using straw, peat moss, etc. to soak up the surface oil. Removal of the oil soaked absorbent and soil should be carried out as soon as possible to minimize the cleanup operation.

Large spills are most easily contained by earth walls, although straw bales, sand bags, etc. can be used to good effect. To minimize penetration of the oil into the soil, the oil should be pumped off as soon as possible. Another means of minimizing penetration is to inject a layer of water under the oil. However, care must be exercised, since the water can flush the oil into the soil when deep penetration has already occurred.

If it is possible to drain the oil away from the spillage area, a plastic or clay lined pit of the type shown in Figure 2 can be successfully used as a collecting basin from which the oil can readily be removed. The drainage channel from the spillage area should also be plastic or clay lined as far as possible to minimize oil penetration. Early removal of oil soaked soil is necessary. Treatment and disposal of oil and soil are covered in Section Recovery, Restoration and Disposal.

POLLUTION OF OPEN NATURAL WATER COURSES (SMALL STREAMS, ETC.)

The simplest method of containing an oil spill on flowing streams, etc. is to use a rigid boom, if it can be sealed into banks (packed with straw, etc.), to stop leaks around it. An example is shown in Figure 3. Installing a culvert and using earth to partially dam the flow is also an effective method of collecting the oil together.

A boom made from bales of straw on slow moving water can be effective in separating the oil and collecting it together. This should be followed by a second straw bale boom, a technique which may be necessary as a follow-up for slip past the rigid types mentioned above.

OIL SPILL ON ARABLE LAND

Spills on arable land will inhibit growth in that area, since it reduces the amount of water and, consequently, food reaching the roots of the plants. Dyke walls should be built to restrict the spread of oil. Free oil can then be removed or mopped up.